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THE AMERICAN MUSEUM JOURNAL

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The American Museum Journal

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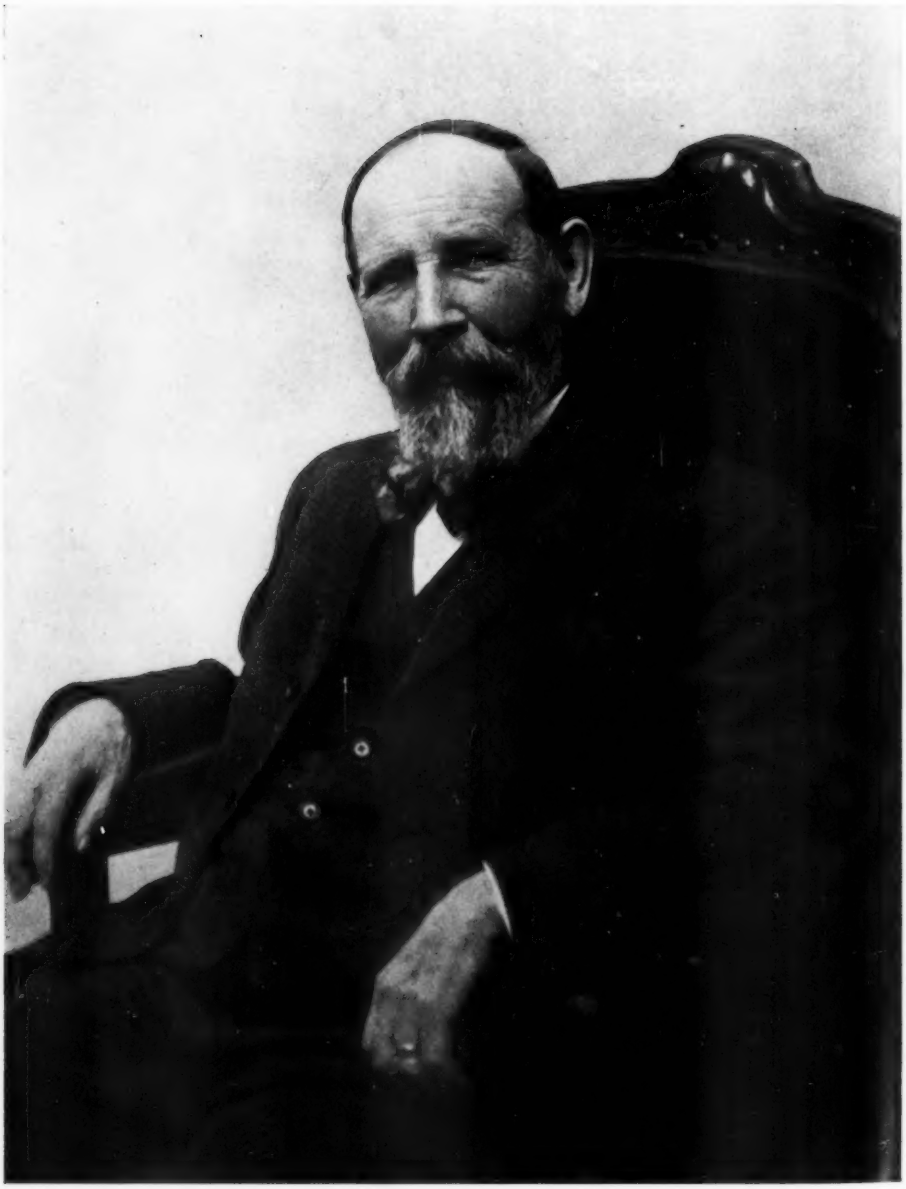


DR. JOEL ASAPH ALLEN

One of America's foremost naturalists and dean in seniority and accomplishment of the American Museum's scientific staff

— "Dr. Joel Asaph Allen: An Appreciation," page 18

The American Museum Journal

VOL. XII JANUARY, 1912 No. 1

QUOTATIONS FROM AN EXPLORER'S LETTERS

THE MUSEUM'S ARCTIC EXPEDITION[1] REPORTS SURVEYS OF RIVERS AND LAKES IN THE FROZEN NORTH AND THE DISCOVERY OF A "NEW PEOPLE," AN ESKIMO TRIBE WHICH HAS NEVER SEEN A WHITE MAN

THE main aim of the Museum's Arctic Expedition, which left New York in 1908, was to investigate the Eskimo both west and east of the Mackenzie River, especially those to the east, little-known tribes in the region of the Coppermine River thought to be more or less uninfluenced by white men.

The difficulties in the way of the work have been great, sometimes almost insurmountable; but at last success has been realized both in the work in ethnology for the American Museum and in collateral work undertaken for the Geological Survey of the Canadian Government. In the words of Mr. Stefánsson:

...."We have covered the last mile geographically that we set out to cover, and have found what we set out to find—a 'new people,' less contaminated, more numerous than anyone thought possible. In 1906 authorities thought Victoria Land probably uninhabited. I shall be surprised to find its population less than two thousand. We have taken physical measurements, photographs and notes everywhere and have secured and brought to a place of safety a large ethnological collection."

Most of the letters come from the expedition's headquarters in an area of spruce (about ten acres) on the Barren Grounds, Upper Dease River (lat. 67° N., long. 117° 30′ W.).

....April 27, 1910, I started east from Cape Lyon, the most easterly point at which Eskimo houses were seen by Dr. Richardson on his Franklin Search Expedition and the most easterly point known to have been visited by the Western or Baillie Island Eskimo. I hoped to reach by sled people supposed to occupy the coast and islands of Coronation Gulf north and west of the Coppermine. Our progress was slow on account of numerous bad pressure-ridges on the sea ice and a rocky coast which made land travel impracticable. The ice was usually in motion and open water could be seen less than three miles off shore. Between Cape Lyon and Cape Bexley are traces of former occupation by Eskimo, ruined villages—

[1] The history of this expedition is found in the November JOURNAL, 1910. Extracts from the letters of Mr. Anderson, the zoölogist of the expedition, will be given in a later issue, as well as further facts regarding the work of Mr. Stefánsson. The photographs were taken in March and April, 1911, on Mr. Stefánsson's second trip to the Coppermine from Langton Bay (this time accompanied by Mr. Anderson). The plates were exposed under extremely variable light conditions and developed in most unfavorable quarters.

Four-year-old Eskimo girl experiencing the new sensation of having her picture taken. She is wearing a coat of long-haired winter caribou skin

perhaps abandoned twenty-five to fifty years ago. The inhabitants of these apparently engaged in whaling to judge by the number of whale vertebræ scattered about.

THE DISCOVERY OF ESKIMO WHO HAVE NEVER SEEN A WHITE MAN

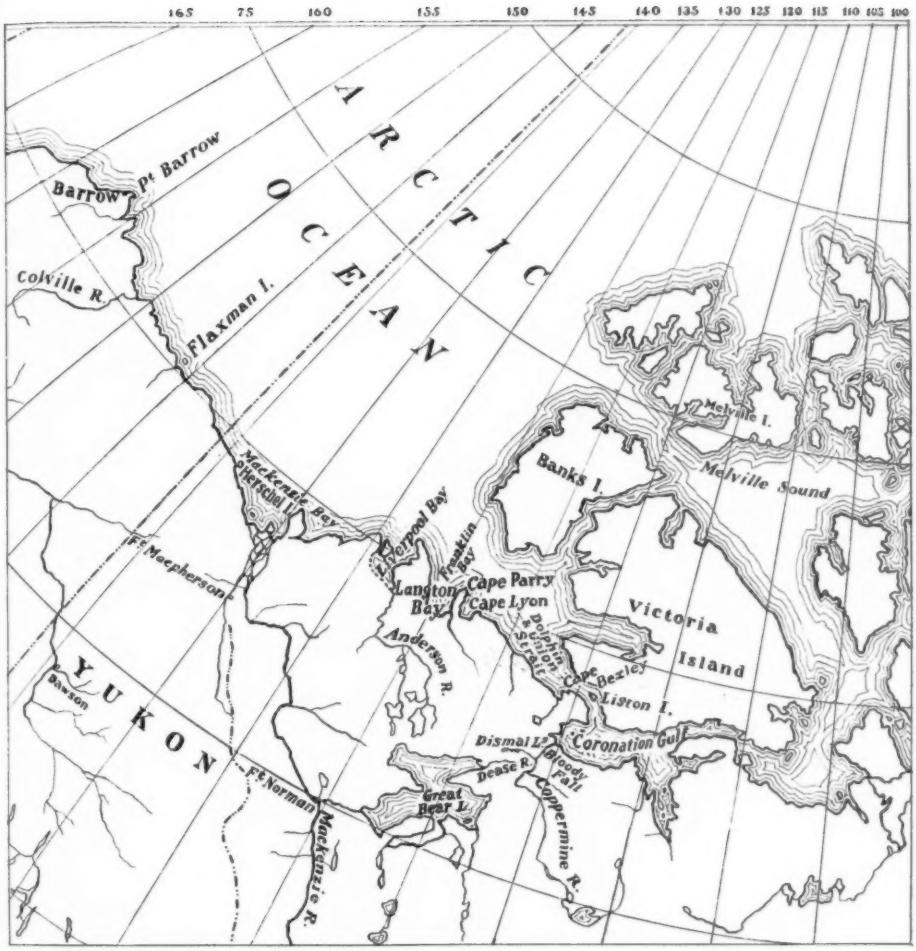
At Point Wise we found the first evidences of this year's travel — pieces of wood cut in two and portions carried off, as material for sleds and bows, no doubt. At Cape Bexley, May 12, we came upon a village of over forty snow houses. These had apparently been recently abandoned. Sled-trails led north toward Victoria Land, which is visible across the strait everywhere east of Point Wise. As the explorers of the last century never found people near here, I supposed village and trail evidences of visits of Victoria Land people who had come across the strait to get driftwood. After an hour on the trail, we saw another village and people out sealing — approximately in the middle of Dolphin and Union Strait.

Through neglecting the conventional peace signal of the Central Eskimo (extending the arms horizontally) our messenger, who preceded us by a few hundred yards, came near being knifed by the man whom he approached, who took his attitude (the arms down) for a challenge or rather a posture of attack. After the first parley however, everything was most friendly, and we found them the kindly, courteous and generous people that I have everywhere found the less civilized Eskimo to be.

We were fed with all the best they had, choice parts of freshly killed seals and huge musk ox horn flagons of steaming blood soup. There was no prying into our affairs or into our baggage; no one entered our house unannounced, and when alone at home the first visitor always approached our house singing so that we had several minutes' warning of his coming. At this time they had not enough meat to give their dogs more than half-rations, yet ours never wanted a full meal, and our own days were a continual feast.

There were thirty-nine individuals in this group, a small part of the A-kū-lī-a-kattág-mī-ūt. Neither they, nor their forefathers as far as they knew, had ever seen a white man, an Indian, or an Eskimo from the west. They considered the Indians bad people as also the Eskimo to the west, but the white men (*Ka-blū-nât*) they considered good people. That their notion of *Kablunat* is vague may be seen in that none of them recognized me as one, considering me the older brother of one of my Eskimo.

The winter home of the Akuliakattagmiut is in the middle of the strait north of Cape Bexley, but in summer they hunt inland south of Cape Bexley. The territory of these people has been supposed by geographers to be definitely known as uninhabited. Their isolation has been complete and largely self-imposed because of their



ITINERARY OF THE STEFÁNSSON ARTIC EXPEDITION FROM APRIL, 1910 TO APRIL, 1911

In late April, 1910, Mr. Stefánsson left Langton Bay and Cape Lyon, the latter the most easterly point known to be visited by the Western Eskimo, and traversed the coast of Dolphin and Union Strait to Cape Bexley encountering no Eskimo until the end of the journey when he found a tribe that had never seen a white man. This coast has been skirted by water four times, by Dr. Richardson in the twenties and again in the forties and Captain Collinson in the fifties of the last century and by Amundsen in 1905. These expeditions however, saw little of the land

In May Mr. Stefánsson crossed over to Victoria Land, where he discovered a Scandinavian-like people, and then proceeded southward from Liston Island entering the mouth of the Coppermine River in early June. He spent the summer on the Coppermine and Dease Rivers and Dismal Lake. In early November he went to Langton Bay to communicate with Mr. Anderson, crossing one of the largest unexplored regions in Canada. In April, 1911, Mr. Stefánsson and Mr. Anderson returned to the Coppermine region

ESKIMO SNOWHOUSE WITH A TENTLIKE ROOF OF FURS

All the coast of Dolphin and Union Strait has been inhabited by Eskimo in former times, but now the most westerly group is the A-kū-lī-a-kat-tág-mī-ūt, wintering off Cape Bexley. Eskimo camp sites are found on every hilltop east of the Coppermine, where ponds and rivers abound with Arctic trout, although there are few birds and but a small number of caribou

ESKIMO HELPING MR. STEFÁNSSON BREAK CAMP AND PACK THE SLEDS FOR THE JOURNEY

The one thousand Eskimo on the two sides of Coronation Gulf and Dolphin and Union Strait contain no more than twenty men who have ever seen a white man, thus representing less contact with the white race than do the people of any other part of the explored Arctics

The Eskimo as a people are exceptionally generous and hospitable. They share their food to the last with one another or with guests; however, food in quantity is more difficult to obtain each year in the Arctics. The Cape Parry region, full of game sixty years ago, is now gameless and deserted. The Coppermine region has not ten per cent of the number of caribou of Richardson's time. Caribou were so plentiful then that Eskimo dressed in fawn skins, and are so rare now that the people are forced to use hides of bull caribou, wolf skins, fox skins and even the skins of birds. In ten years it will be practically impossible to live on the country while traveling in these districts

"Skipping the rope" in the Arctics

Arctic expedition camp near Kendall River. The camp meatrack is built high to protect from foxes and wolverines

Group of Eskimo helping Mr. Stefánsson to break camp and pack. It is said that no Eskimo of the Coppermine region can count beyond five

fear and distrust of white men, of Indians and of the Eskimo to the west. Of one thing I am glad, that I have had an opportunity to see that all the best qualities of the civilized Eskimo are found more fully among their uncivilized countrymen.

SOME ETHNOLOGICAL RESULTS OF THE EXPEDITION TO THE COPPERMINE RIVER

We are able to assign a population of about one thousand to the sea coasts lying between Kent peninsula and Cape Bexley — of these we have seen about two hundred and fifty persons, but we have seen some representative of every group.

We are able to extend the geographic range of the Eskimo west of the Coppermine considerably to the south and to the west on the mainland beyond what was previously known to any explorer, and to show that this is not a recent spread or extension of territorial limits, but that owing to the choice of seasons by previous travelers it was not possible for them to know when they were within the limits of contemporaneous Eskimo occupation.

We can show a correspondence in culture greater than hitherto known between the Central (Coronation Gulf) Eskimo and the tribes who are their neighbors to the south. It seems likely that the evidence, when sifted, will show a focal point farther west than formerly believed, from which the Eskimo have spread east and west in former times.

We are able to extend the range of the wood-and-earth house, of permanent villages and of bowhead whaling some seventy-five or one hundred miles farther east than the limit assigned by the only previous observer, Dr. Richardson.

We have seen the manufacture and use of "primitive" hunting implements before the people knew firearms.

From our knowledge of the Western Eskimo and our experience this year to the east, we can adduce more numerous and stronger proofs than known before to show the extreme, almost unbelievable conservatism of the Eskimo — apart from what our collections, ethnological and archæological, may show. For instance, an Eskimo woman will always turn over pieces of boiling meat, believing they will not cook well on both sides although completely immersed in water. This belief comes from the days several generations back when cooking was done in shallow stone pots where the pieces of meat were seldom more than half covered and had to be turned over.

THE DISCOVERY OF A SCANDINAVIAN-LIKE PEOPLE IN VICTORIA LAND

We have found (May 17, 1910) a North European-looking people, the Ha-nĕ-rág-mī-ūt of Victoria Land north from Cape Bexley. Their total number is about forty, of whom I saw seventeen, and was said not to have seen the blondest of the group. They are markedly different from any American aborigines I have seen; they suggest, in fact, a group of Scandinavian or North European peasants. Perhaps better than my characterization of them was that of my Alaskan Eskimo companion, who has worked for ten or more years on a whaling vessel: "They are not Eskimo, they are fo'c'sle men." Two of them had full chin beards to be described as light, tending to red; every one had light eyebrows; one — perhaps the darkest of all — had hair that curled slightly.

The Eskimo physical type varies considerably from Greenland to Siberia. It may be that all these variants are due partly to blood mixture, and that the earlier, purer type was more "European" in character than we have been thinking. On the other hand, there may have been direct admixture of European blood. In the fifteenth century there disappeared from Greenland the Icelandic (Norse-

Keystone of dome of snow house about to be put in place

Earth-shod iced runners of Coronation Gulf sled packed in snow to prevent ice from melting

Teutonic) colony in its entirety. This colony had a bishop of the Church of Rome, two monasteries, a nunnery, fourteen churches and over three thousand inhabitants, who at one time sailed their own ships to Norway, to Iceland and to America. [Leif Ericson was one of these Greenlanders, and to the general public best known of them all.] This colony was in a fairly prosperous condition as late as 1412 and we have Vatican documents of a later date referring to it; when Hans Egede came there in the seventeenth century he found only house ruins to tell the story, and no sure trace of Scandinavianism in the language or blood of the Greenland Eskimo. Either the colony had been massacred by the Eskimo, had disappeared through famine or pestilence, or had emigrated in a body. This last view many scholars have favored from the first, and if they did emigrate they may be represented in part by the present inhabitants of Victoria Land.

There are many philological points to suggest Scandinavian origin of these people. For instance, their word for "wolf" is *arǵ-lūk*, a word conveying no analogy to any of my companions, even after they understood its meaning. Now the common Old Norse word for "wolf" is *varg-ur*. Not to go into fine philological reasoning, it is enough to say that an Eskimo is as likely to attach a *-lūk* to a foreign word as an Italian is to attach a final *-o*. One of the characteristics of the Hancragmiut dialect is the dropping of initial consonants. Thus the Icelandic *vargur* becomes *arg-ur*; change the final syllable to *-luk* (as Herschel Islanders change Cottle to *Karluk*) and you have *arǵ-lūk*.

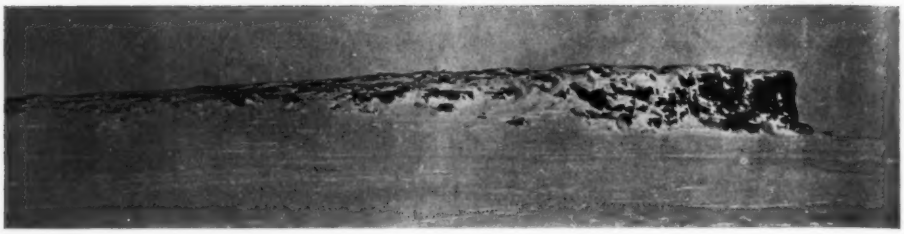
We heard here also a song alliterated in much the Old Norse scaldic style. This sort of alliteration and *anklang* is unknown to me personally or through books as a feature of Eskimo songs anywhere.

Again, in the forties of the last century Franklin's expedition with its full complement of men was lost near the east coast of Victoria Land. Some of these men are accounted for by journal entries of officers who themselves later perished, and others by graves and unburied skeletons along the route toward Back's River. Franklin's men must have known there was a boat route to the Hudson Bay Company's posts on the Mackenzie River, for Franklin's own three expeditions had discovered and mapped it chiefly by boat voyages. Is it unlikely then that some of his men attempted this route? And even if they did not, might not a few of his men have found their way to the Eskimo of Victoria Land and have had sufficient adaptability to learn Eskimo methods of self-support? A readily apparent objection to this hypothesis is that

Eskimo family approaching snow house village. Far at the left is seen the snow house built for Mr. Stefánsson by these Eskimo, who served him as an honored guest

Deserted winter village on the ice of Dolphin and Union Strait off the mouth of the Coppermine River. Eskimo snow villages melt in summer and even when built on shore leave little trace

Nauyak, an Eskimo of the expedition, moving camp. The dogs are harnessed in pairs



Coronation Gulf Island. Islands of the Coppermine region invariably present a vertical cliff on the southern side and slope to the water's level at the north

Ivarluk with the frame of his kayak. Much of this country gives an impression of measureless expanse of snow

Mud cliff along the Coppermine River, one half mile south of Bloody Fall. The summer of 1910 spent in the Coppermine region brought great discomfort because of mosquitoes. The dogs' feet were protected from becoming sore from the stings by boots of caribou skin — when the dogs could be persuaded not to eat them off

even Franklin's whole complement of men would be, if amalgamated with the entire body of Victoria Land Eskimo, insufficient to produce the markedly European type actually found to-day. The validity of this objection can be judged only after we have a complete census of the island and know how far the new type is present in some localities above others.

In regard to the possibility of Franklin's men having survived for a time, there is the interesting contributory evidence that there are at various places people said to be "named with the names of white men." One name in particular we have found in practically every community: "Nĕrk." This is, at Herschel and farther west, the Eskimo pronunciation of the English "Ned."

OBSERVATIONS AND SURVEYS IN ONE OF THE LARGEST UNEXPLORED AREAS IN CANADA[1]

Eastward from Cape Lyon open water was continually seen from three to ten miles off shore till we reached Inman's River, when the edge of the flow made off diagonally toward Prince Albert Sound, Victoria Land. There were heavy pressure-ridges close inshore. In my opinion, if a sled journey were attempted from Cape Parry to Nelson Head, Banks Land, as has been proposed, it could be more safely and easily accomplished (and probably more quickly as well) by crossing the strait east of Inman's River rather than by going directly across between the mentioned headlands. East of Point Wise the ice of Dolphin and Union Strait is always comparatively level and on it the Eskimo of the strait have their winter houses.

Although this is the first time the coast of the strait has been traversed in winter, it has been four times skirted by water — by Dr. Richardson in the twenties and again in the forties and Captain Collinson in the fifties of the last century and by Amundsen in 1905. Amundsen saw little of the land, of course. Dr. Richardson's geological notes of the coast, on the other hand, are full and beyond addition by me at present.

The prevailing winds in the strait and Coronation Gulf in winter, as clearly shown by the snowdrifts are northwest. For this reason there is plenty of driftwood along the mainland coast east beyond Cape Bexley but none on the Victoria Land coast.

Entering the Coppermine, we found the first spruce shrubs a mile north of Bloody Fall. The fall itself, by the way, is no fall at all, but a rapid about six hundred yards long that reminded me somewhat of the Whitehorse Cañon of the Yukon. From the appearance of trees, the tree-line is within four miles east of the river till one passes the Musk Ox rapids; here a stream (about the size of Kendall River) enters from the east, and up this are trees for about ten miles. Of this river I made a compass survey some fifteen miles up. Eskimo camp sites east of the Coppermine and north of this small river are on practically every hilltop, "buttes" they would be called in the American Southwest. Numerous ponds and some creeks and rivers abound in Arctic trout; there are no geese, cranes or swans, few ducks and few birds of any kind as compared with other Arctic districts I know; caribou are in some number.

Dismal Lake I found to be about as charted by Hanbury and not as on previous maps. The eastern branch of the Dease River has its source in a small creek that heads about eight miles SW. (true) from the narrows of Dismal Lake (lat. 67° 24′). This creek runs SW. some seven miles into a lake called by the Eskimo "I-ma-ĕr′-nĭrk". The lake is some four by seven miles, its long axis SW.–NE. Of this and the

[1] Quotations from a letter to Director R. W. Brock, Geological Survey, Canada.

Upper Dease and the portage route from Dismal Lake to Imaernirk I have made a survey.

I have obtained specimens of what I think is rich iron ore from Victoria Land north of Cape Bexley. Copper is picked up almost anywhere by the natives in the whole Coronation Gulf district, each family having its favorite place to search for material for knives and arrows. The spot most in repute however is a short distance north of Dismal Lake. I have several of these copper specimens.

After spending several months on the lower Horton River and a like period on the Coppermine, I am of the opinion that Horton River is fully as large a stream. Mr. Stefánsson made a compass survey in December, 1910, of Horton River from the point nearest Langton Bay to within seventy miles of Bear Lake, taking also a collection of rock specimens.]

The expedition's opportunities for ethnological study in this region are thought to be better now than they are likely ever to be again; the expedition is well placed in regard to outfit and food supplies, while sophistication and changes in the material life of the Eskimo will progress rapidly, due to the trade relations which have been opened with the Bear Lake Indians during this summer of 1911. To the regret of Mr. Stefánsson, the expedition itself has helped to hasten the end of the isolation of the Eskimo. They came to trust him, a white man, also his Eskimo from the West, and learned from these Eskimo that Indians are a harmless people nowadays and besides have an abundance of iron and other articles valuable to possess. Therefore it is the desire of the expedition, notwithstanding the homesickness of the men, to remain in the field still another year because of their great opportunities for work.

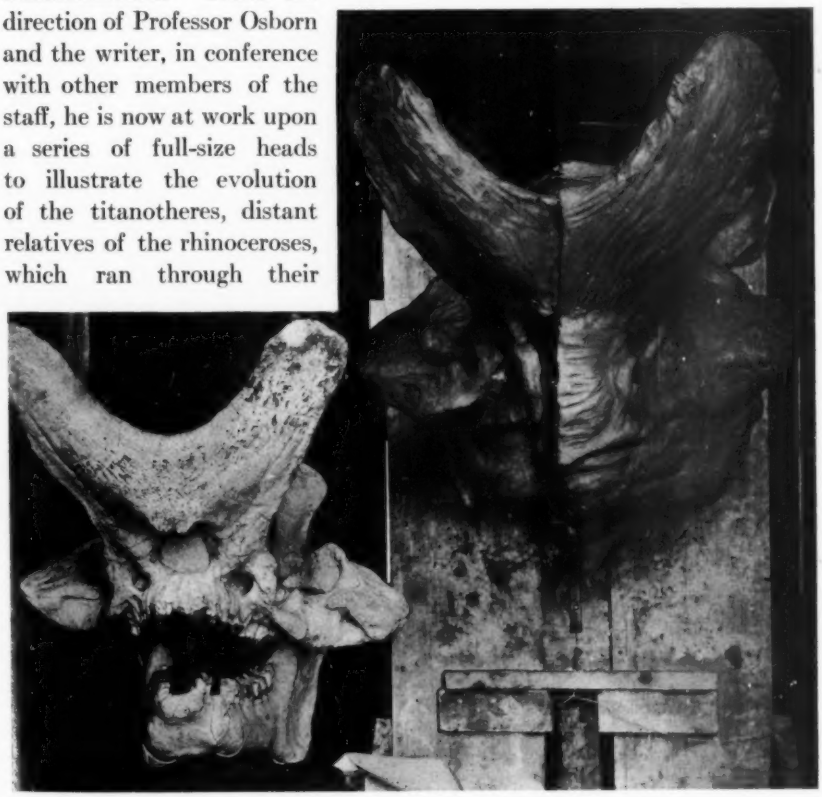
White fox in trap; photograph taken at a distance of six feet. A white fox skin is worth about six dollars in the Arctics and seventy-five skins, the equivalent of four hundred and fifty dollars, is a large number to be taken in one year. The present shortage on the market in Russian white fox will cause rapid destruction of the species in Arctic America

A NEW RESTORATION OF A TITANOTHERE

By William K. Gregory

ONE of the chief objects of the American Museum's department of vertebrate palæontology is to let the public discover that fossils are not necessarily dry and unprofitable, but on the contrary full of interest and meaning. Every legitimate resource of science and art is employed to clothe, as it were, the dry bones with flesh — to picture the jolly ichthyosaur disporting once more in the waves, or the tyrannosaur harassing his sluggish foe.

Mr. Erwin S. Christman has recently made some very effective restorations, especially those of the primitive "elephants," *Mæritherium* and *Palæomastodon*. Under the direction of Professor Osborn and the writer, in conference with other members of the staff, he is now at work upon a series of full-size heads to illustrate the evolution of the titanotheres, distant relatives of the rhinoceroses, which ran through their



Titanothere skull and model of full-size head in process of preparation. The skull is rst copied exactly in a clay model. Additional clay to represent the flesh is then added to e outside of the skull model. The photograph shows the right half of the model completed d the left half still revealing the clay skull which makes the foundation

MODELING A TITANOTHERE

The mouth as represented here is probably too large. The angle of the mouth in herbivorous animals does not extend usually behind the first grinding tooth

Mr. Erwin S. Christman, who has made for the Horse Alcove a series of models of living horses in full action, is now at work on a series of full size heads to show the evolution of the titanotheres, extinct distant relatives of the rhinoceroses

known evolutionary history in the first half of the Age of Mammals. The last and greatest member of the titanotheres is the flat-horned *Brontotherium platyceras*, and a brief review of our reasons for representing this animal as it here appears may serve to illustrate one or two principles in the art of restoring extinct animals. The skull was first modeled in clay from a well-preserved fossil specimen. The clay to represent the flesh was then laid in on one side of the skull model, the other side being left exposed temporarily to show the supposed relations between skull contour and external form.

The top and sides of the head offered no especial difficulty, since the location of the principal muscle-masses of the temporal region and jaws could be inferred by comparison with the corresponding parts in the skulls of recent rhinoceroses and other distant relatives of the brontothere. The flattened "horns" (bony outgrowths from the skull) for various reasons were represented as covered with very tough hide rather than with true horn. The nose and nostrils were restored after careful comparison with many animals, especially the "black" rhinoceros, whose bony nasal region is essentially similar to that of the brontothere.

The most difficult part is the mouth and here present-day animals offer some at first rather contradictory evidence. In both the "black" and the "white" rhinoceroses of Africa the front teeth of the upper and lower jaws are lacking in the adult and the corresponding bony parts are reduced. From this similarity we might be led to expect that the lips of the two were also similar. And yet, as a matter of fact, the "black" rhinoceros in adaptation to its habits of plucking up roots and shrubs, has a pointed or prehensile upper lip; while in the "white" rhino, which feeds exclusively upon grass, the upper lip is very broad and square. The Asiatic rhinoceros, which feeds in the "grass jungles," has large cutting upper incisors and divergent lower tusks; its upper lip is pointed, but less than in the "black" species. These examples indicate that at least in the rhinoceroses the shape of the upper lip depends less upon the form and arrangement of the front teeth than upon the nature of the food and the mode of tearing it up from the ground.

The grinding teeth of the brontothere seem to be fitted to crush and cut up vegetation of a somewhat coarser nature than the tender shrubs and roots which form the principal food of the "black" rhino. Still less was the brontothere a true grazer, for in comparison with the "white" rhino, its grinders had low crowns and lacked the "cement" which is so characteristic of the teeth of grass-loving ungulates. Also its front teeth were feeble, their prehensile function being very possibly usurped by a heavy upper lip. Hence it seems probable that the brontothere fed on coarse shrubs and roots and had a heavy, prehensile upper lip; accordingly it is this type of lip which Mr. Christman has given to his model.

Mr. Erwin S. Christman, who has made for the Horse Alcove a series of models of living horses in full action, is now at work on a series of full size heads to show the evolution of the Hipparion, extinct diagonal relatives of the rhinoceros

DR. JOEL ASAPH ALLEN: AN APPRECIATION

THE JOURNAL congratulates itself on the privilege of publishing as its frontispiece the portrait of Dr. Joel Asaph Allen, dean in seniority and accomplishment of the American Museum's scientific staff. While the past quarter of a century has swept by with its political problems and its economic struggles, one man has sat at his desk in the American Museum content to do the work that crowded before him. To-day this man is one of the country's great men of science with but few who can equal him in achievement.

Dr. Allen came to the American Museum in 1885 from the Museum of Comparative Zoölogy at Cambridge where he had been assistant in ornithology and mammalogy and for many years a student under Agassiz, having been fortunate enough to accompany Agassiz on the Thayer expedition to Brazil and the Amazon. He is one of the men to whom has passed the spirit of devotion for natural history that Agassiz felt and the inspiration Agassiz gained in early comradeship with Carl Schimper and others and later from Oken and Cuvier.

Dr. Allen on leaving Cambridge was already a scientist of renown, but it is at the American Museum that he has done the bulk of his work leading the institution to honor through the high character of his researches and receiving in return unusual opportunity — in this case opportunity that forced much of his investigation into the definite lines of the systematist. Zoölogical classification however is a far different thing to-day from what it was in the time of Linnæus or even of the great naturalists of a century ago, for the lines of descent and blood relationship can be drawn close in accordance with very extensive knowledge in comparative anatomy, histology and embryology, palæontology and geographical distribution. But the man who rises to first rank must have a master mind that can make a wide sweep of this modern horizon as well as the keen eye of the master observer and the discriminating judicial power by which to disentangle the contradictions of a multitudinous bibliography.

Dr. Allen has been one of the men to shape zoölogical classification and keep it in line. He has described new families and genera and many hundreds of new species and through a close study of geographical distribution in relation to species formation, has also drawn the distinctions clearer in many series of intergrading subspecies. His researches have been published under some fifteen hundred titles, some of which like his *American Bisons*, 1876, and *History of North American Pinnipedia*, 1897, are in book form and others in articles and monographs appearing in the Bulletins and Memoirs of the Museum of Comparative Zoölogy and of the American Museum of Natural History, and also scatteringly in the Proceedings of the Biological Society of Washington, U. S. National Museum, Boston Society of Natural History, Philadelphia Academy of Sciences and U. S.

Geological Survey. He has also been a constant contributor to *Science* and the *American Naturalist*, always making his points in strong, clear English and with a simple and forceful style. The same powers of mind which make him a great naturalist give him success as editor. He has had in charge the Bulletin and Memoirs of the American Museum since 1887, has edited the Bulletin of the Nuttall Ornithological Club for eight years and for a period of twenty-eight years has been editor of *The Auk*, the official publication of the Ornithological Union. It has been the quiet, continual and thorough work of Dr. Allen as editor of *The Auk* and in the council of the American Ornithological Union that has proved one of the most important factors in keeping alive in America the interest in ornithology aroused at the time of the publication of Coues' *Key to North American Birds*.

Although perhaps not conscious of the fact, Dr. Allen is a great force in the American Museum. At the head of the department of mammalogy and ornithology for twenty-seven years, neither the possible official power of the position nor the necessary routine have kept him from continual and arduous scientific investigation and from giving with great broad-mindedness equality of opportunity to those working with him; as a result the department has set an example as a producing power and enforced the truth emphatically set forth in the lives of eminent naturalists heretofore — that definite scientific knowledge, the summation of which constitutes the basis for the world's progress, can be gained only by single-mindedness of purpose that is forgetful of self.

SHELL AND PEARL FISHING ON THE MISSISSIPPI

By W. P. Herrick

Dr. Herrick is engaged in a study of the fresh water pearl clams and the pearl fisheries of the United States, especially in such questions as the number of pearls secreted relative to hardness of the water, and to distortion of the shell and other diseased conditions of the clam. He spent several months at the Mississippi pearl fisheries during the past summer and has recently been making use of the Museum library in his work. He has engaged to supply the new Shell Hall with materials for a display illustrative of the pearl industry.— Editor.

A YOUNG workman in Germany, who had served an apprenticeship in making buttons from bone and from the marine mother-of-pearl, received a present of some shells said to have come from the rivers of America. These lay in a dusty corner of his shop until finally he determined to work up a few into buttons. He found the material desirable, and the price of marine shell being high, started at once for the United States, taking with him his small foot-power machine. On arrival he worked his way slowly westward examining the rivers for shells. One day a man watching his work said, "You ought to go to the Mississippi where

you can get those shells by the cartload." He proceeded to the Mississippi. There shells were gathered, a few buttons finished and taken to Chicago. A little perseverance found a market at a good profit, but reluctance at handling the small output of one workman. A partner was enlisted, more machines purchased, workmen personally instructed and the button industry was established — which has made the city of Muscatine on the Mississippi.

This was about 1890. The young man, Mr. J. F. Beopple, is now government shell expert at Fairport on the Mississippi, and the present size of this fresh water pearl and button industry although difficult to state exactly is estimated at about seven million dollars annually. The surroundings, the element of chance in pearl fishing, and the enormous growth and kaleidoscopic changes in the button industry all lend romance to the work.

The Mississippi at Fairport is about a mile wide, with large islands and baylike sloughs, and although the winding channel is twenty feet deep, there are flats which may appear when the river falls a few feet and considerable areas of country of such level that it may be covered quickly by a corresponding rise. The water is very muddy (with about one hundred and ten parts hardness to the million) and has an average current of three miles an hour increased after a heavy rain and often emphasized by the wind, while the spring ice sweeps away any ordinary dock. Under these conditions the methods of obtaining the shells are three: Wading proves effective in shoal water or when the river is low; raking from an anchored skiff is a method much used in deeper water by skillful fishermen, although laborious and impossible when the river is rough; while dredging, "drifting with a brail," is probably the method most generally in use.

The "brail" or crow foot dredge is dragged astern and the so-called "mule," a three or four foot square of boards with a wooden handle on top, is dropped flatside to the current off the bow of the boat and held in this position by ropes to give power and steadiness to the craft. When the down river side of the bed is reached, both dredge and mule are hauled aboard, and the clams removed from the hooks of the dredge. Then the fisherman "chugs" with his motor or rows to the up current side and the drift is repeated hour after hour.

The mollusks lie partly buried in the mud at the bottom of the river and the hooks of the dredge brush between the shell's two open valves, which snap shut in a grasp so tenacious that their edges are often broken in getting out the hooks. An average of three or four hundred pounds daily is considered a good haul. The work may be carried on by a single fisherman near his home, or by one or more families which camp on the river bank, shifting location when the catch proves poor.

After being brought to the shore the mollusks are steamed that the valves may open and the meats may be more or less separated from them. Then the shells are thrown into a pile and the meats are put on the sorting-

board for the search for pearls. There are so-called "pearlers" who do not steam the clams but open them with a knife, but these are few. Admitted that in "cooking out" pearls occasionally drop to the hot bottom of the pan and are burned and that some experts believe that the steaming injures the lustre of the pearl, the former rarely happens in reality as the finest round pearls are apt to be imbedded in the flesh of the body of the mollusk, and as regards the latter, the verdict is by no means unanimous. Both fishermen and shell buyers agree also that the shells — which have a market value fully equal to the pearl find — are cleaner and better when "cooked out" than when "soured out" or when cleaned with a knife.

The work of going over the meats by hand for pearls is often done by the women of the family while the fisherman is making his next day's catch. Locally the name of "pearl" is reserved for the pieces which have a complete skin and are symmetrical, those spherical being called round pearls, those flattened button pearls — "balloon," "pear-shaped" or "drop" as the case may be. The white pieces are now especially in demand for ladies' ear studs, and thus when perfect and of fine lustre are of considerable market value. Other forms though typical and not attached to the shell, are called "slugs." There are almost limitless varieties of these in size, shape, color and lustre, and they have many names such as "nuggets," "points," "wings," and "angel wings." The ordinary slugs are usually sold to local or traveling pearl buyers, bringing from two dollars and a half to forty dollars an ounce.

Thus the raw material is obtained. When several tons of the shells have been accumulated, they are sold, usually to a representative of the nearest button-cutting factory. Good shells during the past summer were bringing about twenty-three dollars a ton. It is considered that the shells give the necessary wage, the pearls furnish the fascination and give the profit — if there is any. This summer one pearl was found valued at nineteen hundred dollars, while there are quite a number of fishermen in the vicinity who have worked many years without finding one worth fifty and are still expecting the perfect pearl.

EXHIBITION OF THE NEW YORK AQUARIUM SOCIETY

By Bashford Dean

Photographs by Dr. Fritz Bade

THE New York Aquarium Society held its second annual exhibition at the Museum during early December, its first annual meeting having been held in the New York Aquarium. It was evident that the exhibition appealed to people of many kinds, quite beyond the technical circle of aquarists — which is already large. Thus there were

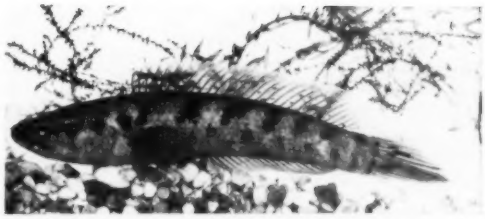
many young visitors, who came and observed the fishes critically as a result of their first experiments in aquarium keeping; on the other hand, there were professional zoölogists who came to see some of the fishes alive which they had known only on the shelves of museums.

The aquaria were nearly a hundred in number, mainly small ones, balanced (still water), attractively displayed, showing besides fishes, rare aquatic vegetation and a number of curious invertebrates. Popular exhibits there were, of course, in number: gold fishes of many forms — "fantails," "telescopes," "comets," "fringetails," some admirable specimens both Chinese and Japanese, including some of the variety which is short and heavy of body and blunt of tail, especially prized by the Japanese fanciers. Then there were paradise fish (*Macropodus*) of all sizes, which is sib to the famous gourami, the most delicately flavored of all East Indian food fishes, as well as to the Bengalese *Trichogaster* common in the Calcutta market — here also shown living.

But the feature of the exhibition was the number and interest of the exotic forms represented, creatures which one is apt to know only from pictures in textbooks. Thus there was the water butterfly, *Pantodon* (African), said to be a "flying fish," although judging from the habits of the fish in the aquarium, the stroke of its filmy tail does not allow it to spring far out of water. There was *Mastacembelus*, an Indian "eel" which is not an eel. There was an Indian *Ophiocephalus* which can live beneath sun-baked mud and which under ordinary conditions breathes partly by means of a "lung," and resembles outwardly the American ganoid *Amia*, which, by the way, is also more or less of an air breather. There were several genera of cichlids, perchlike fishes, tropical American, and of characinids which replace the tribe of carps in Africa and South America, and include the most formidable fresh water fishes in the world. There were tropical catfishes which are rarely seen out of their native waters, among them *Macrones* (East Indian) with bright bands of color and exaggerated "feelers," also a South American *Dorad*, its body half covered with armor, and its fully armored cousin, *Callichthys*, which is probably the most eccentric of all catfishes. There were forms whose habits of reproduction are extraordinary, like *Gambusia*, *Girardina*, *Pœcilia*, which bear living young, and were exhibited beside their youngsters. Finally, there was not lacking the pla-kat, or Malayan fighting fish, *Betta pugnax*, a veritable aquatic game-cock reared for shows of fish-fighting which in Siam draw throngs of spectators.

Especial credit in bringing together many of these exotic and rare forms is due to Mr. Isaac Buchanan, an amateur who devotes much time to the study of aquarial fishes, and it was similar interests which led Mr. Richard Dorn, president of the society, to organize the present display. The society

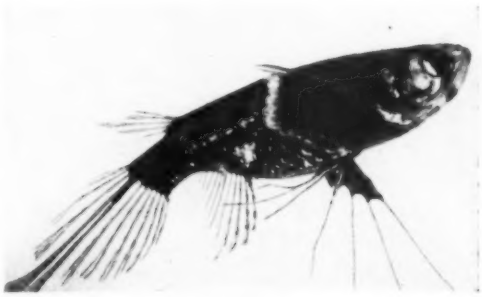
itself is made up mainly of amateurs; it includes nearly a hundred members, a number of whom are German-Americans who have brought over the sea their love of this form of nature study; for in Germany the aquarium societies are old and widely-spread institutions, attracting and training many naturalists. The present society may even be regarded as a *filiale* of the widespread German organization "Triton."



A fish (*Ophiocephalus*) of India which can live under sun-baked mud

East Indian catfish (*Macrones*), bright colored and with long feelers

The present exhibition demonstrates again, and in an attractive way, the value of keeping an aquarium, not as a hobby merely, but also as a means of studying the habits and development of many aquatic forms which would otherwise be inaccessible to naturalists. It even puts within range of its owner some of the large questions which these forms illustrate, as for example the variation of aquatic animals and plants under artificial conditions, and the way in which these variations are passed on to the young, questions which lead far into the field of Darwinism. Nor can we leave out of account the experimental value of the aquarium, in testing how fishes can be reared, and what are the best conditions for breeding them, questions which touch practical fisheries. The success of the present exhibition leads one to hope that similar displays will be held annually.



Water "butterfly", *Pantodon*, from West Africa

In Siam rival specimens of *Betta pugnax* are pitted against each other like game cocks

THE SUN DANCE MEDICINE BUNDLE

A POWER IN APPEALS FOR LIFE. OPENED ONLY IN SACRED CEREMONIAL FOR THE FULFILLMENT OF A WOMAN'S VOW

By Clark Wissler

AMONG the exhibits for the Plains Indians may be found the bundle for the medicine woman in the Blackfoot sun dance, a simple outfit far more sacred than even the medicine pipe. The chief object is a headdress built on a strip of rawhide in the form of a lizard. On the headdress in front is what is spoken of as a doll, which contains a prairie turnip. All this together with certain paints is kept in a cylindrical rawhide case, in fact is never taken out except when the appropriate ritual is performed. Attached to the case is a digging stick, woman's primitive tool and with these Indians the symbol of her fall.

As their old sacred story runs, a virgin loved the morning star and was carried by him to the home of his heavenly parents, the sun and moon, where she took up the domestic duties of a wife. As on earth, she gathered roots for the table with her digging stick, but one large fine prairie turnip she was forbidden to dig up. Now like the woman of our own sacred story, she yielded to curiosity and thrust her stick under the turnip. Sorrow and grief for her people below were now her portion and she was banished to earth, but directed to teach the lesson and confer a medicine bundle on her descendants. Since the bundle came from the house of the sun, it symbolizes much of his power and might.

This medicine bundle finds its chief function in the fulfillment of a vow — a woman's vow. If a dear one is near unto death, a woman may stand before the sun and say, "Hear me, I am virtuous, I have been true to my marriage bond; if our dear one is spared, I will open the bundle at the sun dance." A medicine man is usually called to take formal note of the vow and to direct the unhappy one. Now the sun is not deceived and if an unworthy woman so address him, retribution is certain. Further, this woman must at the next sun dance make public confession of all temptations she has experienced. Yet more, this public confession is also a challenge and it is the duty of every bystander to impeach her, if there is aught to impeach.

Following the vow are months of preparation. At the time of the sun dance the woman fasts four days and on the last day the bundle is opened, the headdress placed on her brow and the digging stick on her back. The ritual is long, requiring most of the day for its many songs and prayers. In one place a solemn medicine man while dancing with the stick rehearses

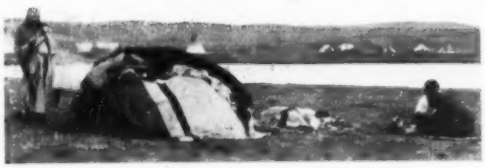
the digging of that first forbidden turnip. At last the woman is conducted to the sun dance place where her confession is made. The bundle she cares for until some other woman makes a vow.

The whole tribe has an interest in this ceremony. They camp in a great circle and await the issue of those four days, for should there be a fault, all would suffer. The appearance of the woman with this regalia is the great ceremonial moment of the tribe, all are there to see and stand in reverent silence.

That the bundle is here is due to our late friend The Bear-One. One day we received a letter in which he stated that the bundle owned by a certain woman could be had for the cost of a few presents to her family. We learned later that the husband of the bundle-owner had died. During his illness the woman prayed to the bundle and made a vow to the sun. Now if such a plea is of no avail, the woman is released from her obligation, but more, she is then under the displeasure of the sun and should get clear of the bundle. Because of the disrepute this bundle was now in, no one would care to take it and the poor widow looked upon it as the real cause of her husband's death. The reader must know that the taking of a bundle is like entering into marriage, one cannot escape the bonds without scandal and crime, except in the regular manner. Even one so powerful as our friend could not have ventured to give us such a bundle under normal conditions; as it was, the risk was great. Misfortune and sudden death were predicted for him; in fact his end recently, some two years after the events of this story, was regarded as proof of the sun's displeasure.

Building the frame of willows

Procession of holy men in sun-wise direction



Entering for the purification rites

The Blackfoot sweat house ceremony is a part of the sun dance ritual[1]

[1] Through a mistaken transference of captions on page 299 of the December JOURNAL, the discovery of the Blackfoot sun dance was accredited to Dr. Pliny E. Goddard. The investigations of Dr. Goddard concerned the sun dance of the Plains Cree.

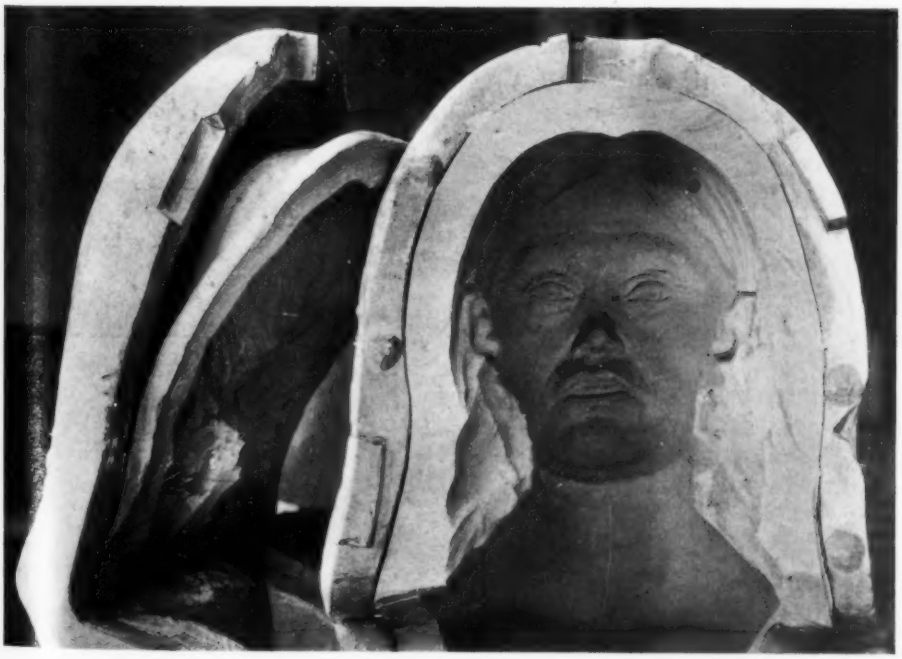
THE MUSEUM'S COLLECTION OF LIFE CASTS

WITH PHOTOGRAPHS ILLUSTRATING THE METHOD OF MAKING DUPLICATE CASTS FOR EXCHANGE WITH OTHER INSTITUTIONS

THE origin of the primitive races of the New World and their possible relations to the geographically isolated races of the Old World is one of the most interesting questions of ethnological research, which if it ever comes to anything must needs reach its results through comparative study of the races themselves in their physical types and their cultures. In this country especial interest has attached to study of the Indian tribes of the northwest coast of North America for comparison with northern Asiatic tribes, with a view to establishing proofs of the derivation of the western tribes from the eastern, or at least of a mingling of the two

Model of a head of which duplicate casts are desired. The model is covered with a half-inch thickness of clay [a small part of the clay is cut away to show the face of the model underneath] and a two-piece plaster mold is made over the clay. When the plaster has hardened, the mold is taken off, and the clay is removed from the model

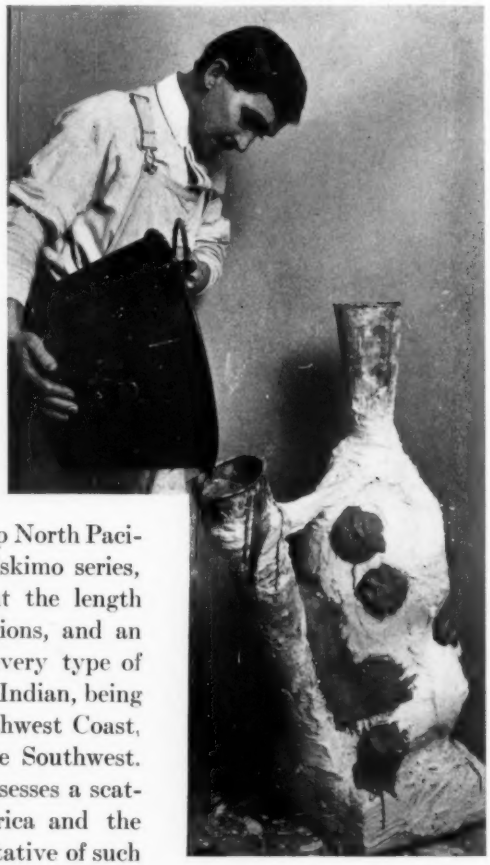
The mold is like a jacket or hood, separated from the model by just the thickness of the clay. Model and jacket are given a coat of shellac and one of oil, then are put back in position and the space between them filled with glue



he glue hardens to form a mold within the plaster jacket, the model of the head having been emoved. [The photographs illustrate the process in connection with three different busts.] A gl mold is firm enough to give an accurate cast, yet yielding enough to allow its removal from abou the cast, however many undercuts the plaster surface may present

during the age of land connection of the two continents. Interest has centered also in an investigation of the tribes of the Southwest and of the islands of the Pacific with reference to establishing possible connection between the Old and New Worlds at this point through the widespread Polynesians.

The American Museum has unusual hopes for the future of this research because of large equipment for the study in life casts of physical types. In 1906 the institution possessed more than five hundred masks from life, and the number has steadily increased until it has become a very complete collection. There is a full series of Siberian casts, actually made in the field on the Jesup North Pacific Expeditions a complete Eskimo series, made pretty much throughout the length and breadth of the Arctic regions, and an elaborate series representing every type of culture of the North American Indian, being especially strong for the Northwest Coast, the Plains, California and the Southwest. In addition the Museum possesses a scattering series for South America and the South Pacific Islands, representative of such races as Patagonians, Maori, Samoans, and Filipinos. Almost without exception these stand for actual field study of the given race and are accompanied by a long series of photographs and careful color studies for many subjects.



Mr. James C. Bell, expert worker in plaster, making a glue mold of an Indian head. Glue is poured into the funnel, the lower end of which opens into a half-inch space between the original model and the plaster jacket fitting over it. As the glue rises in this space about the model, holes previously cut in the jacket to allow the escape of air are plugged with clay. Finally the funnels at the top and side are capped with clay and the glue is allowed to set for twelve hours

Ethnology draws many conclusions from skull study but these results must of necessity be incomplete as compared with records based on casts from life which give perfect

contour of head and accurate detail of feature. The accuracy of the casts has steadily risen during recent years with the perfecting of methods of technique. Formerly the man who allowed a plaster mold of his head to be taken was subjected to considerable discomfort, which resulted in a cast in which the features were so distorted that it could serve only as a basis from which the sculptor modeled the finished bust; but since the paraffin method has been in use the cast can be gained without distress to the subject, therefore the expression remains true to life and all measurements are accurate. This removal of the necessity of doing any modeling on the casts and therefore of the sculptor's temptation to conventionalize his work has been a most important factor for truth in the ethnological investigations underway.

In addition to this largest research value of the Museum's several hundred casts, lesser values are continually realized. Exhibition is of course one of the immediate purposes of the casts. If it is desired to study any given tribe, the exhibition hall shows not only the articles of its culture but also accurate representations of the people themselves. And furthermore, the Museum has continual demand for duplicate casts from universities and colleges and other museums, as well as from artists and various private parties interested in Indian or other primitive types of man. Thus the collection extends its usefulness through sale, exchange and gift.

A large number of duplicate casts, to serve for study, exhibition or exchange, can be made from a glue mold

A NOTE ON POISONOUS SNAKES

By Mary Cynthia Dickerson

A snake group recently put on view in the reptile exhibit of the second floor represents a small part of a South Carolina swamp with its logs and stumps, vines and water hyacinths, the last of interest because often an obstruction to navigation in southern rivers. The group shows side by side poisonous snakes, the water moccasin (*Ancistrodon piscivorus*) and non-poisonous, the brown water snake (*Natrix taxispilotus*). It also exemplifies the viviparous type of snake, the brood of sixty representing the offspring of one of the water snakes.

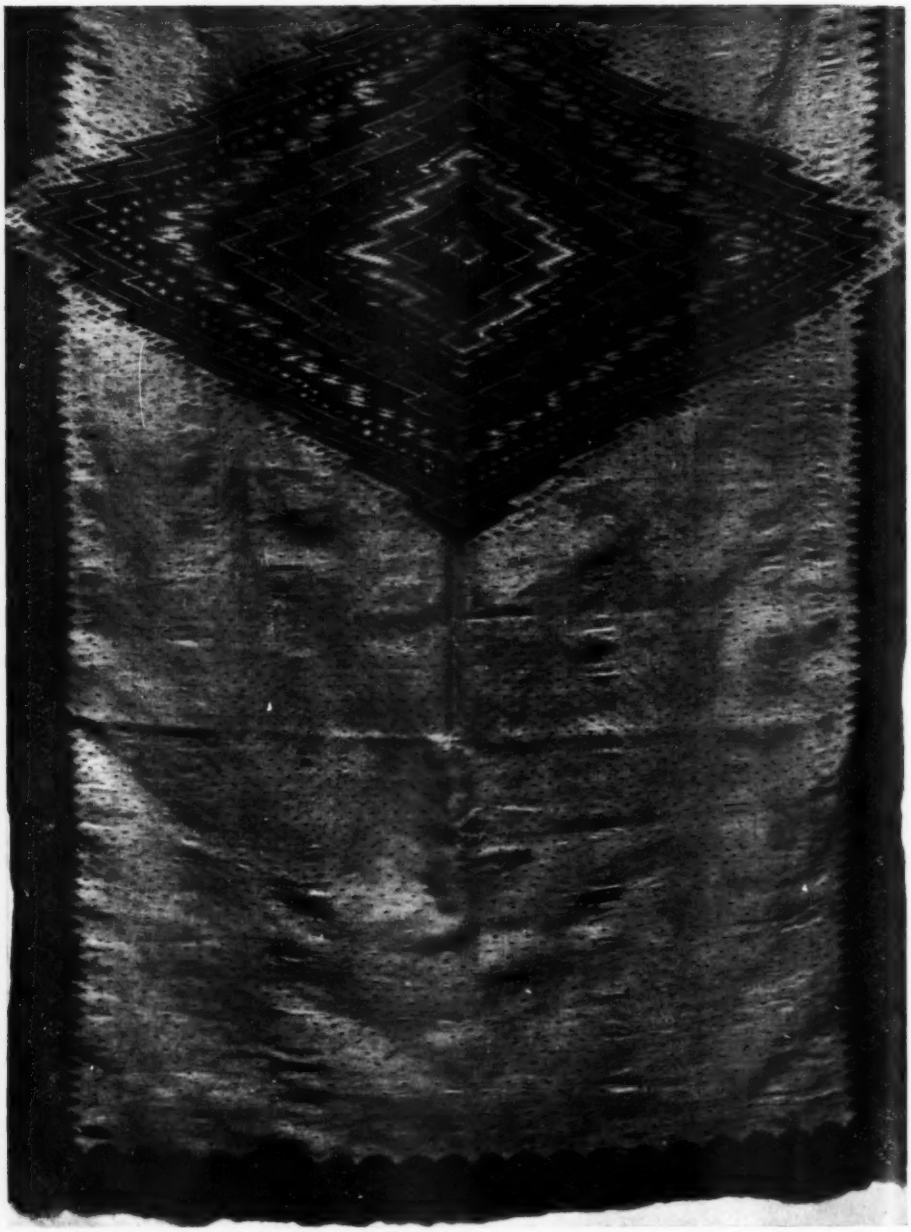
IT would be fortunate if there were some certain rule for distinguishing a poisonous from a non-poisonous snake. That the non-poisonous has large scales on the head is not an infallible guide since the cobras and their allies are quite as innocent looking; that the poisonous has usually a triangular head distinct from the neck is again untrustworthy as many harmless species, like the water snakes, when under the influence of fear, inflate the sides of the head to a semblance of concealed poison glands. Neither does an antagonistic manner tell much because certain harmless forms, like the hog-nosed snakes, so-called "spreading adders", are aggressive in a higher degree than many deadly species.

This lack of distinction is not, for North America at least, the grave misfortune it would seem however, for there has been exaggeration in the popular mind as to the number of poisonous species. In India to be sure,

where people go with bare feet and legs through the jungle, the time has been when mortality from snake bite reached twenty thousand annually. This was before the discovery of antivenin, a serum prepared in the same way as germ disease antitoxins and now for sale in India, as in other countries where branches of the Pasteur Institute have been established. As early as 1887 experiments proved that repeated inoculations of snake venom put an animal into a condition resistant to the venom, but not until 1894 was a serum dispensed for practical use.

In North America accident from snake bite has always been a rare happening, the dangerous species being few — namely, two moccasins, the copperhead and the cottonmouth (*Ancistrodon*), two coral snakes (*Elaps*), small brilliantly colored allies of the cobras, and thirteen rattlesnakes (*Sistrurus* and *Crotalus*). With the exception of the coral snakes, these are all "pit vipers" and can be recognized when seen near at hand by a peculiar deep depression, of questioned function, between the eye and the nostril and also by a vertical pupil. But for snakes in general the venomous species is marked by no peculiar structure except the poison apparatus itself, and many non-poisonous snakes even possess the poison glands in a primitive stage of development, lacking only the poison-conducting fang. Therefore in North America where out of about one hundred and ten species only seventeen are dangerous to man, and of these not often more than two occur in a given district, the problem of safety even for extended expeditions into the wilderness demands merely a knowledge of the appearance of the few given forms.

Portion of a new snake group that gives acquaintance with the deadly water moccasin of the South [the snake in the foreground; wax cast by James C. Bell, color work by Frederick H. Stoll]



MEXICAN SERAPE REPRESENTING EXTINCT WEAVING WHICH CANNOT BE IMITATED BY MACHINERY

The pattern is in two colors of indigo on a tan-colored ground. Old Saltillo serapes have a beauty of color and design rivaling the fabrics of Persia and India and comparable with fine old mummy-cloths of Peru

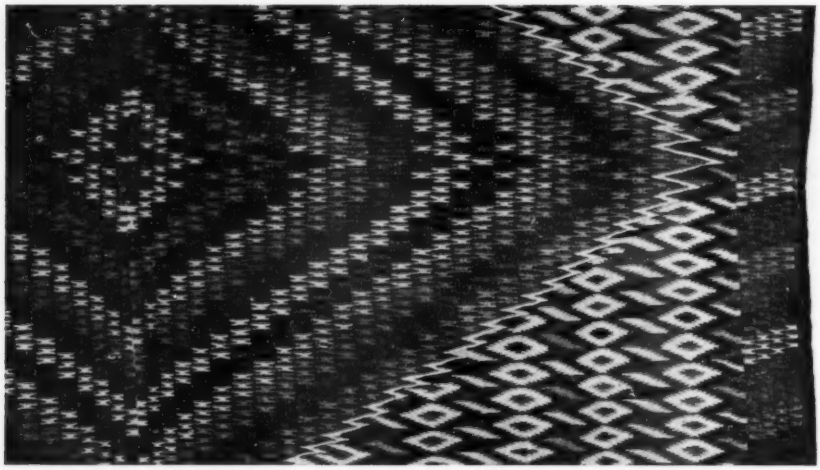
THE ANSON W. HARD COLLECTION OF SALTILLO AND CHIMAYO BLANKETS

SOME very wonderful examples of American aboriginal weaving are displayed at the northern end of the hall devoted to the Indians of the Southwest. The exhibit consists of twenty-five Chimayo and Saltillo blankets known as Mexican "zarapes" or "serapes," purchased for the Museum by Anson W. Hard in 1910. The weaving represented in these blankets is now extinct and there is no way by which it can be imitated exactly by machinery. Fine examples of the blankets are difficult to obtain having received practically no attention from museums and collectors, probably because thought until recently of Spanish origin instead of Indian.

It is well-known that the Navajo are the only extensive blanket-weaving Indians of North America to-day. It is believed however, that if the full story of weaving in this country prior to the coming of the white man were known, we should find that the art was widespread through eastern, southern, middle and western North America. This is thought to be the fact not from the existence of samples of this weaving but from the evidence of impressions of patterns of weaving on pottery preserved in these regions, and from the relationships of the various North American tribes. Textiles cannot long survive in a moist changing climate. It is only in dry regions such as the Southwest and the coastal parts of Peru that delicate fabrics could have been preserved.

Throughout Mexico serapes were formerly much worn as ponchos or simply carried over the shoulder. The great market for them was the town of Saltillo in northern Mexico. Chimayo blankets made by Chimayo Indians of northern New Mexico, who are now practically extinct, are thought to be the connecting link between Navajo and Saltillo weaving. Four types of blanket weaving have been known — namely, among the people of Peru, the Pueblos of New Mexico, heirs to the art of the Cliff Dwellers, the Navajo of Arizona and New Mexico, and the Indians of Alaska. Little has been known of the textile art between Peru and the more northerly centers. It is fortunate therefore that these examples of aboriginal weaving from Saltillo have come into the possession of the Museum.

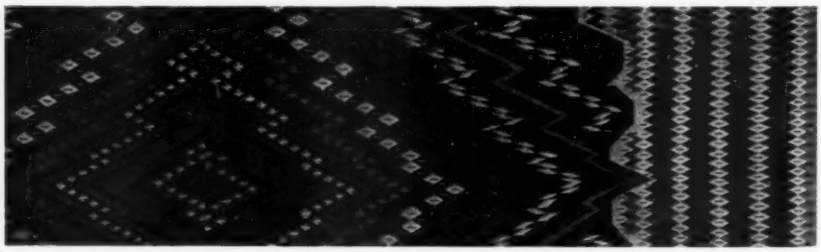
Saltillo blankets are large, often measuring seven by ten feet, and show very minute patterns for North American hand weaving. They are often covered with a delicate tracery of design made by the combination of small figures in harmonizing shades, although a few of the blankets have



Small section of a red serape with an unusually effective design carried out in white, light yellow, rose, indigo, green and black

bolder designs in more contrasting colors. Most of them present a splendid diamond medallion of concentric design in the center while the border develops delicate patterns, usually minute geometric motives. San Miguel blankets differ from the Saltillo in having a rosette medallion. The colors are fast and while brilliant are harmonious in their combinations. Some of the blankets are red in tone with the designs carried out in shades of green, blue and yellow, while other very beautiful specimens consist of two or three shades of blue in combination with white only or with white and brown.

Although not so prized as the finest Navajo nor at present carrying so high a money value, some of these blankets have a beauty of color and design which makes them rival the work of Persia and India. In fact they are among the finest examples of weaving to be found in any country or in any age and should be compared with fine old mummy cloths and other pre-Columbian textiles of Peru.



Small section of a beautiful serape of finest wool, thin and of light weight. The design is woven in two shades of indigo, with white, brown and black

MUSEUM NOTES

SINCE the last issue of the JOURNAL the following persons have been elected to membership in the Museum:

Life Members, MRS. CHARLES L. BERNHEIMER, MRS. CLEVELAND H. DODGE, MRS. D. WILLIS JAMES, MISS D. GREER, MISS CAROLINE CONSTANTIA WARD, MISS ALICE DELANO WEEKS, and MESSRS. SAM. SLOAN AUCHINCLOSS, S. A. GOLDSCHMIDT, GEORGE GORDON KING, A. M. POST MITCHELL, WILLIAM H. MOORE, ROBERT ROGERS, C. RITCHIE SIMPKINS, ROBERT E. TOD, and ELMORE A. WILLETS;

Sustaining Members, MESSRS. HOWARD HUNTINGTON, SAMUEL KRAUS, JACOB W. MACK and ALFRED NATHAN;

Annual Members, MR. and MRS. EDWARD T. H. TALMAGE, MR. and MRS. CHAS. GOUVERNEUR WEIR, MRS. JAMES HOYT BENEDICT, MRS. JACOB S. BERNHEIMER, MRS. VIRGINIA DANZIGER, MRS. SIMON FLEXNER, MRS. THEO. A. KOHN, MRS. H. A. MAYHON, MRS. HENRY S. REDMOND, MRS. C. F. STREET, MRS. LIONEL SUTRO, MRS. EZRA RIPLEY THAYER, MRS. E. VAN RAALTE, MRS. JOHN I. WATERBURY, MISS JESSIE M. BRINKLEY, MISS ANNA E. CHAIRES, MISS HELEN SEARS, the MISSES SCOFIELD, REV. ISAAC S. MOSES, and MESSRS. HERMAN BEHR, WM. M. BENJAMIN, MAX E. BERNHEIMER, SIDNEY BLUMENTHAL, ALEXANDER DEUTSCH, LUDWIG DREYFUSS, J. M. ELLSWORTH, ABRAHAM ERLANGER, KAUFMAN GEORGE FALK, MOSES J. FREUND, WM. TOD HELMUTH, JR., MORRIS J. HIRSCH, B. KAUFMANN, JULIUS KAUFMANN, SAMUEL KNOPF, EPHRAIM B. LEVY, JULIUS A. LEWISOHN, C. M. LOEB, J. LOEB, ROBERT H. MAINZER, SAMUEL MATHER, OSCAR MICHAEL, SIMON MILLER, THEO. OBERMEYER, J. OPPENHEIM, MYRON H. OPPENHEIM, Z. H. OPPENHEIMER, HOWARD PALMER, WM. ROSS PROCTOR, K. J. RAHLSON, JOHN D. REYNOLDS, ISAAC L. RICE, ISAAC RIEGELMAN, SIMON R. RIEM, HUBERT E. ROGERS, SOL. G. ROSENBAUM, ALFRED S. ROSSIN, FRED. SAUTER, JR., J. LOUIS SCHAEFER, W. SCHALL, JR., ARTHUR L. SELIG, ALBERT J. SELIGSBERG, FRANCIS SMYTH, LEO STEIN, NATHAN B. STERN, THEODORE STERNFELD, SYLVAN L. STIX, CHARLES STRAUSS, JOSEPH STROOCK, BENJAMIN TUSKA, DONALD SEYMOUR TUTTLE, B. ULMANN, L. A. VAN PRAAG, JOHN L. WILKIE and BRONSON WINTHROP.

DR. FREDERIC A. LUCAS was made Corresponding Member of the Zoölogical Society of London at its meeting of December 20.

MRS. ISABELLE FIELD JUDSON has succeeded to the patronship of the late Cyrus W. Field and Mr. Charles S. Shepard to the patronship of the late Edward M. Shepard.

DR. WALTER B. JAMES has been elected patron of the Museum in recognition of his contributions for the preparation of marine groups in the department of invertebrate zoölogy.

PROFESSOR GEORGE GRANT MACCURDY of Yale University spent part of the past month in the classification of the Museum's collections from prehistoric Europe. An exhibit of this material is being arranged in the tower room of the North American archæological hall, second floor west.

A SERIES of models of bacteria is under preparation by the department of public health. They will illustrate recent discoveries in the structure of these minute organisms, including all the more important bacterial enemies of man, such as the tubercle bacillus, the typhoid bacillus, the plague bacillus, and the spirillum of cholera, with killed and preserved colonies showing actual growth.

The collection of living bacterial cultures has grown rapidly during the year. There are under cultivation 479 cultures, representing 322 different types, and forming what is probably the most complete collection of bacteria in existence, with the single exception of the Kral collection at Vienna. Also 577 cultures have been sent out from the laboratory to fifty-three different institutions in the United States and Canada, representing a somewhat unique service to American bacteriological teaching and research.

MR. N. C. NELSON, instructor in anthropology in the University of California, has been appointed assistant curator in the department of anthropology. His best-known work has been the exploration of shell mounds on the California coast. He will assume his duties here next June and will give especial attention to North American archæology.

MR. GEORGE BORUP, who was in charge of the third supporting party of Admiral Peary in his last polar expedition, has been appointed assistant curator in the department of geology and invertebrate palæontology.

THE ORIZABA HABITAT GROUP, which it is hoped will be completed in January, promises to be one of the most attractive in the series of bird groups thus far made. It differs from the preceding groups in attempting to present an impression of the faunal character of the region it represents, rather than the home life of some particular species or colonial gathering of birds. The foreground therefore will contain characteristic species of birds of eastern tropical Mexico, while the background, with its view of snow-crowned Orizaba, is designed to give an impressive lesson in the distribution of life as controlled by altitude. This feature will be explained by a series of photographic transparencies introduced in the panels on either side of the group, and portraying the characteristic vegetation from the tropical forests at the base of Orizaba, through the oaks of the temperate zone and the conifers of the Canadian zone, to its treeless summit above the limit of life.

THE year has closed with much work in progress, although many things are so hinged together that one cannot move without the other. For example, the section of the Big Tree in the Darwin hall has been waiting many years for a suitable place in the hall of forestry. The rearrangement of the forestry hall permits the removal of a case that provides room for the Big Tree, that in turn leaves room for the erection of a case to hold the domesticated dogs illustrating variation under domestication, and the removal of these permits a rearrangement of the mammals that will ultimately lead to the assembling of new bird groups.

Similarly the removal of the groups of New York mammals to the hall of North American mammals permits the taking down of the large cases and provides a home for the exhibits of the department of public health and the closely related department of anatomy and physiology. At the same time the cases once containing the groups of mammals will be transferred to the African hall for the extension of that part of the collection.

MR. WALTER GRANGER, associate curator of fossil mammals, has been abroad since early November engaged in part upon researches among the fossil mammals of the English and French museums, especially the Old World relatives of the four-toed horse.

THE exhibit illustrating the evolution of the horse has been reinstalled and extended. It now displays upon a single panel the principal stages in the evolution in size and general proportions, in skull and feet, teeth, brain and limb-bones, all arranged in accordance with the successive geologic formations in which they are found. The panel is to the right of the entrance of the mammal hall. The Amblypoda, gigantic quadrupeds of the early Tertiary Period are being reinstalled upon the panel system at the opposite end of the hall. Other recent additions to the fossil vertebrate collections are the Fort Lee reptile and the skeleton of a smaller relative, the Rutiodon, from the coal fields of North Carolina, displayed in the corridor opposite the elevator; and in the quaternary hall, skeletons (casts) of the extinct South American quadrupeds *Macrauchenia* and *Toxodon*, with a number of small models illustrating the extinct animals of the Quaternary Period in South America.

DR. WILLIAM H. HOLMES, curator-in-chief of the anthropological division of the National Museum, visited the Museum December 19 to view the North American archæological collections. Dr. Holmes is generally recognized as the leading archæologist in America.

PROFESSOR CHARLES-EDWARD AMORY WINSLOW will represent the American Museum of Natural History at the forthcoming International

Congress of Hygiene and Demography to be held in New York September, 1912.

THE EXECUTIVE COMMITTEE has created the office of assistant librarian and has appointed Miss Ida Richardson Hood to fill the position.

THE COLOMBIAN EXPEDITION has thus far sent collections of birds and mammals numbering between three and four thousand specimens, which prove to be exceptionally rich in species new to the Museum collection as well as new to science. Preliminary study of the birds, for example, shows that the wrens and thrushes are represented by eighteen species and subspecies all of which are practically unknown to the Museum collection, while several appear not to have been described. The single family of flycatchers further illustrates the richness of the avifauna of the region in question, the collection containing no less than fifty-nine representatives of this family, or nearly twice as many as are found in America north of Mexico.

MR. J. PIERPONT MORGAN has presented to the gem hall a small but very interesting and valuable collection. It consists of large crystals of benitoite — the beautiful new gem stone of California, a double colored polished beryl section, a euclase crystal associated with yellow topaz, and three remarkable tourmalines from Madagascar. The most prominent specimen is a really wonderful mass of aquamarine weighing thirteen pounds, which is only a small portion of a crystal that weighed 246 pounds. It is deceptively like glass, possessing a perfect texture, and having the typical and always fascinating aquamarine tint, delicately blue with interior greenish reflections.

AMONG the groups in preparation for the Darwin hall is one illustrating the complex relations of animals to one another and to man, which it is hoped will be on exhibition within a few months. A museum has been likened to an iceberg seven-eighths of which, so far as the public is concerned is not in view. The visitor sees the finished product; he does not see the varied steps that lead up to it from collection in the field through the work of preparation. The public reads with interest of extended exploration in Colombia, of fossil hunting in Alberta: a year, or two years afterward appears a note or an article to the effect that such a group or such a specimen has just been placed on exhibition. Even the visitor to the workrooms cannot realize how long and tedious much of the preparation really is nor the pains necessary to secure seemingly simple results.

DR. P. E. GODDARD, associate curator of anthropology, has just returned from the Southwest. About a month was spent on the Kiowa-Comanche

reservation in the region of Anadarko, Oklahoma. A fairly representative collection, which included a number of excellent buckskin garments and ceremonial objects of interest, was obtained from the Kiowa-Apache and Kiowa. A collection of metal-work and other objects was obtained from the Caddo; and from the Wichita, who still occupy their large grass houses, were obtained among other old and valuable specimens two buffalo skin robes and a buffalo skin bag. During the stay a large number of myths and folk tales were recorded in the Kiowa-Apache dialect. These will furnish much needed information concerning the folklore of the region and a basis for linguistic study. This is a matter of unusual interest since the Kiowa-Apache have been believed to be more closely connected with the Athapascan peoples of the North than with their other relatives, the Apache and Navajo of the Southwest. It was discovered however that they are linguistically closely related to both the Lipan and the Jicarilla Apache. About two weeks were spent with the Jicarilla Apache of northern New Mexico checking up the proofs of the forthcoming Museum publication on the Apache.

THE UNITED STATES GEOLOGICAL SURVEY has established with great accuracy the astronomical position of the Museum building and its elevation above mean sea level. An observer from the United States Coast and Geodetic Survey spent some weeks here during the past summer, making observations of the stars while getting direct telegraphic reports on the apparent movements of the same stars from the Naval Observatory in Washington; also an engineer from the New York City department of surveying ran a series of levels from several known points to two points at the Museum. We learn that the central point of the foyer is in latitude 40° 46′ 47.91″ N., longitude 73° 58′ 40.46″ W., and that the floor of the foyer is almost exactly 83 feet 6 inches above mean sea level.

THE department of preparation is constructing for the Darwin hall a series of models of Tahiti and other islands of the Society Group. These show various stages in subsidence and wearing away of volcanic peaks in the ultimate formation of coral atolls.

IN revising the installation of the New Guinea material in the South Sea hall, Dr. Lowie is making extensive use of the sketches secured by the Museum with the Finsch collection. Dr. Otto Finsch, the celebrated naturalist and traveler, provided with the collection a very full series of illustrations accurately picturing many phases of native life. These are highly desirable, as many aspects of aboriginal culture, such as house and boat types cannot always be readily transported or even secured in model specimens, although often they form the most characteristic elements of

the culture of a tribe. This applies even more emphatically to social and ceremonial life, which can be studied very inadequately, if at all, from museum specimens. It also applies in large measure to objects of personal adornment and clothing. For instance, it would not be at all obvious to the average visitor how the aborigines wore a profusely decorated heart-shaped object conspicuously exhibited in one of the New Guinea cases. A glance at the sketch now beside the specimen shows it to be a warrior's breast ornament. Similar results have been accomplished with other articles of dress which otherwise could not readily be understood except with the aid of long explanatory labels.

ERRATUM. The time necessary for the formation of the stalagmite in the Copper Queen mine was given in the December JOURNAL (page 306) as 67,000 years instead of 17,000 years. Those interested in the matter will kindly make the correction.

LECTURE ANNOUNCEMENTS

PEOPLE'S COURSE

Given in coöperation with the City Department of Education

Tuesday evenings at 8:15 o'clock. Doors open at 7:30.

The first five of a course of lectures on "Travels in the Orient for the Purpose of Scholarly Research" by PROFESSOR A. V. WILLIAMS JACKSON. Illustrated by stereopticon views.

January 2 — "India and its Historic Sites."
January 9 — "India and its People."
January 16 — "Delhi, the Mogul Capital and Scene of the Durbar."
January 23 — "India and its Literature."
January 30 — "Baluchistan, a far-off Land in the Orient."

Saturday evenings at 8:15 o'clock. Doors open at 7:30.

The first four of a course of lectures on "The Doctrine of Evolution and the Problems of Human History" by PROFESSOR HENRY E. CRAMPTON. Illustrated by stereopticon views and by exhibits.

January 6 — "Common Animals and their Story."
January 13 — "Animal Development and its True Meaning."
January 20 — "Extinct Animals and the Testimony of the Rocks."
January 27 — "How Nature Works in Evolution."

LEGAL HOLIDAY COURSE

Fully illustrated. Open free to the public. Tickets not required.
Lectures begin at 3:15 o'clock. Doors open at 2:45.

January 1 — MR. ALBERT E. BUTLER, "Travels in the Rocky Mountain Region."
February 22 — PROFESSOR HENRY E. CRAMPTON, "In the Wilds of British Guiana and Brazil."